IMPLANTATING IONS IN SHALLOW TRENCH ISOLATION STRUCTURES

Abstract of the Disclosure

Ions are implanted into the dielectric layer and/or barrier layer over a semiconductor substrate to change the polish rates of either or both layers during formation of a shallow trench isolation (STI) structure. The ion implantation can change or affect the polish rates of the material and the polish selectivity, and reduce or minimize unwanted topography resulting from chemical mechanical polishing (CMP). After CMP, the resulting STI structure has a more uniform and smooth topography.